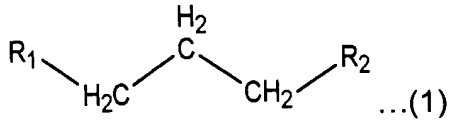
What is claimed is:

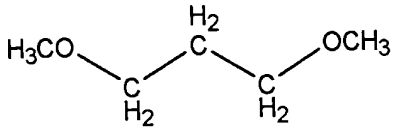
1. An organic electrolytic solution for a lithium sulfur battery, comprising a lithium salt and an organic solvent, wherein the organic solvent contains a compound of formula (1) below and an isomer thereof:



...(1)

where R_1 and R_2 are independently selected from among a halogen atom, a hydroxy group, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_1-C_{20} alkoxy group, a substituted or unsubstituted C_6-C_{30} aryl group, a substituted or unsubstituted C_6-C_{30} arylalkyl group, a substituted or unsubstituted C_6-C_{30} aryloxy group, a substituted or unsubstituted C_2-C_{30} heteroaryl group, a substituted or unsubstituted C_2-C_{30} heteroarylalkyl group, a substituted or unsubstituted C_2-C_{30} heteroaryloxy group, a substituted or unsubstituted C_5-C_{20} cycloalkyl group, and a substituted or unsubstituted C_2-C_{20} heterocycloalkyl group.

2. The organic electrolytic solution of claim 1, wherein both R_1 and R_2 in said formula (1) are methoxy groups as in formula (2) below:



...(2)

3. The organic electrolytic solution of claim 1, wherein the organic electrolytic solution further contains at least one of a polyglyme and a dioxolane.

4. The organic electrolytic solution of claim 3, wherein the polyglyme is selected from the group consisting of diethyleneglycol dimethylether ($CH_3(OCH_2CH_2)_2OCH_3$), diethyleneglycol diethylether ($C_2H_5(OCH_2CH_2)_2OC_2H_5$), triethyleneglycol dimethylether ($CH_3(OCH_2CH_2)_3OCH_3$), and triethyleneglycol diethylether ($C_2H_5(OCH_2CH_2)_3OC_2H_5$).

5. The organic electrolytic solution of claim 3, wherein the dioxolane is selected from the group consisting of 1,3-dioxolane, 4,5-diethyl-dioxolane, 4,5-dimethyl-dioxolane, 4-methyl-1,3-dioxolane, and 4-ethyl-1,3-dioxolane.

6. The organic electrolytic solution of claim 3, wherein the amount of at least one of the polyglyme and the dioxolane is in a range of 5-95% by volume, and the amount of the compound of said formula (1) or an isomer thereof is in a range of 5-95% by volume, based on the total volume of the organic solvent.

7. The organic electrolytic solution of claim 3, wherein the polyglyme and the oxolane are mixed in a ratio of 1:9-9:1 by volume.

8. The organic electrolytic solution of claim 3, wherein the organic electrolytic solution further contains at least one selected from the group consisting of sulfolane, dimethoxyethane, and diethoxyethane.

9. The organic electrolytic solution of claim 1, wherein the lithium salt has a concentration of 0.5-2.0M.

10. A lithium sulfur battery comprising:
a cathode that contains sulfur or a sulfur compound;
an anode;
a separator interposed between the cathode and the anode; and
the organic electrolytic solution of claim 1.

11. The lithium sulfur battery of claim 10, wherein the cathode is formed of at least one selected from the group consisting of a simple substance sulfur, Li_2S_n where $n \geq 1$, kasolite containing Li_2S_n where $n \geq 1$, organo-sulfur, and a carbon-sulfur composite polymer expressed as $(C_2S_x)_n$ where x ranges from 2.5 to 50 and $n \geq 2$.

12. The lithium sulfur battery of claim 10, wherein the anode is formed as a lithium metal electrode, a lithium-metal alloy electrode, a lithium-inert sulfur composite electrode, a carbonaceous electrode, or a graphite electrode.

13. A lithium sulfur battery comprising:

a cathode that contains sulfur or a sulfur compound;

an anode;

a separator interposed between the cathode and the anode; and

the organic electrolytic solution of claim 2.

14. The lithium sulfur battery of claim 13, wherein the cathode is formed of at least one selected from the group consisting of a simple substance sulfur, Li_2S_n where $n \geq 1$, kasolite containing Li_2S_n where $n \geq 1$, organo-sulfur, and a carbon-sulfur composite polymer expressed as $(C_2S_x)_n$ where x ranges from 2.5 to 50 and $n \geq 2$.

15. The lithium sulfur battery of claim 13, wherein the anode is formed as a lithium metal electrode, a lithium-metal alloy electrode, a lithium-inert sulfur composite electrode, a carbonaceous electrode, or a graphite electrode.

16. A lithium sulfur battery comprising:

a cathode that contains sulfur or a sulfur compound;

an anode;

a separator interposed between the cathode and the anode; and

the organic electrolytic solution of claim 3.

17. The lithium sulfur battery of claim 16, wherein the cathode is formed of at least one selected from the group consisting of a simple substance sulfur, Li_2S_n where $n \geq 1$, kasolite containing Li_2S_n where $n \geq 1$, organo-sulfur, and a carbon-sulfur composite polymer expressed as $(C_2S_x)_n$ where x ranges from 2.5 to 50 and $n \geq 2$.

18. The lithium sulfur battery of claim 16, wherein the anode is formed as a lithium metal electrode, a lithium-metal alloy electrode, a lithium-inert sulfur composite electrode, a carbonaceous electrode, or a graphite electrode.

19. A lithium sulfur battery comprising:

a cathode that contains sulfur or a sulfur compound;

an anode;

a separator interposed between the cathode and the anode; and

the organic electrolytic solution of claim 4.

20. The lithium sulfur battery of claim 19, wherein the cathode is formed of at least one selected from the group consisting of a simple substance sulfur, Li_2S_n where $n \geq 1$, kasolite containing Li_2S_n where $n \geq 1$, organo-sulfur, and a carbon-sulfur composite polymer expressed as $(C_2S_x)_n$ where x ranges from 2.5 to 50 and $n \geq 2$.

21. The lithium sulfur battery of claim 19, wherein the anode is formed as a lithium metal electrode, a lithium-metal alloy electrode, a lithium-inert sulfur composite electrode, a carbonaceous electrode, or a graphite electrode.